

Alternator Removal and Installation Instructions

CAUTION: Always use care when working on your vehicle! Do NOT disconnect any electrical cables or wiring while the engine is running!

Removal

- 1 Make sure that the rest of your charging system is in good working order.



1) Check to make sure the battery is charged to 12.4-12.6 volts. **If it is not**, check the battery fluid level (if possible) and **charge the battery now**. 2) Now turn on the headlights if the voltage drops below 12.1v, the battery may be bad.



Check fuses and fuseable links (under hood, under dash and in-line). With fusible links look for a soft spot in the cable. Replace any fuses or fusible links as necessary.



Corroded/Loose connections. Spliced on cable terminals are a **common** source of problems. Replace bad cables and clean all corrosion from terminal ends and cables.

CAUTION: A defective or discharged battery can damage your new alternator!

IMPORTANT: Check to see if your alternator is externally regulated (look for a label on the outside of your new alternator). Check the operation of the external regulator, per the manufacturer's instructions (replace as necessary).

- 2 Disconnect the negative (-) battery cable from the battery.

WARNING: NEVER disconnect the battery cable with the engine running! This could be dangerous to you and damage your charging system!



- 3 Loosen or remove belt.

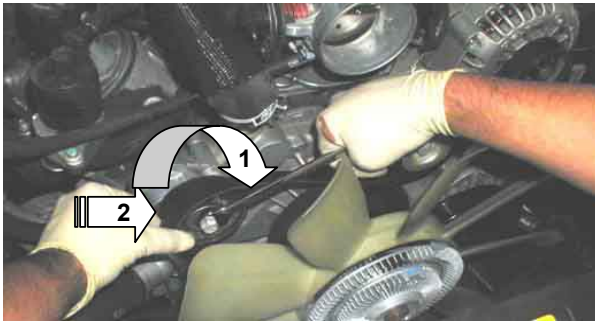


With adjustment ear on alternator--

1) Loosen bolt in adjustment ear, 2) rotate alternator to create enough slack to remove the belt from the alternator pulley.

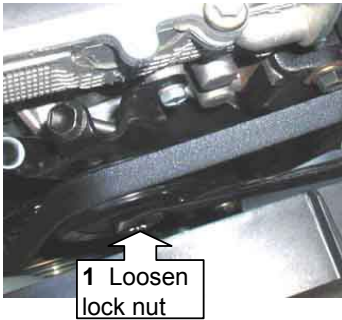
NOTE: If the belt will not go slack, loosen the pivot bolt at the bottom of the alternator. Then pull on the

3 cont.



With automatic tensioner--Using a long handled wrench, 1) pry back the tensioner arm to create slack in the belt. 2) Remove the belt.

NOTE: In the photo the wrench is installed to the center nut of the tensioner pulley. Many tensioners have a square hole in the tensioner arm and require a breaker bar to pry the arm back.

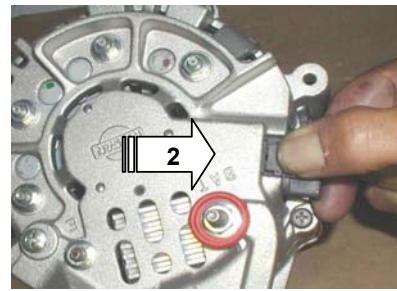


With manual belt tensioner--

1) Loosen the lock nut in the center of the pulley. 2) Then loosen the adjusting bolt until enough slack has been created to remove the belt from the alternator pulley.



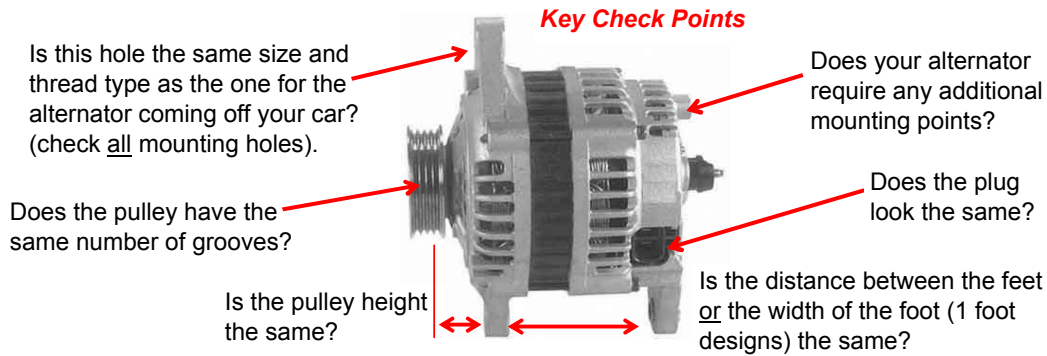
4 Remove all wire/cable connections on the alternator. 1) Remove the BAT (+) cable by removing the retaining nut as shown. 2) Where plugs are used most have locking tabs. Apply pressure to the lock tab while pulling gently.



5 Remove mounting bolts or hardware and remove alternator from vehicle.



- 6 Make sure you have the correct part number for your vehicle.** Hold the two alternators up side by side and inspect for differences in the "Key Check Points".



CAUTION: Some alternators may look different, but may be correct.

Installation

WARNING: Before starting work, be sure the vehicle is in Park or Neutral (for manual transmissions). The parking brake should be set and wheel chocks should be used under two of the tires!

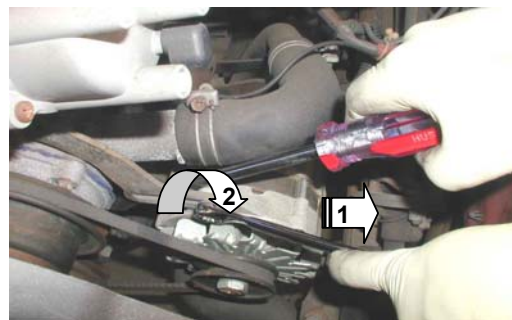
- 7 Mount alternator.** Position unit on alternator bracket and install mounting hardware. For units with automatic belt tensioner, torque bolts securely. For alternators with adjustment ear or manual tensioner, install mounting bolt(s) finger tight only (at this time).



- 8 Install Belt.**

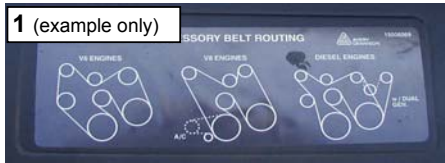
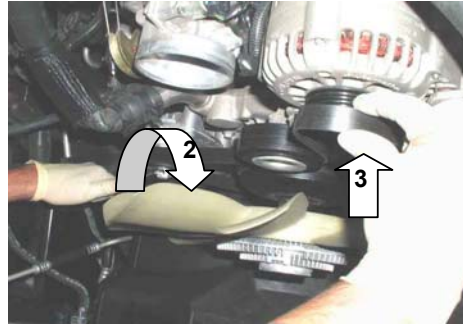
CAUTION: Check belt condition by turning the belt inside out. Belts need to be changed a minimum of every 60,000 miles or 5 years which ever comes first. If the belt is frayed, has cracks, glazing (shiny), or irregular wear, **CHANGE IT NOW.**

- a) For those vehicles with adjustment ear on alternator--** 1) Using a pry bar between the front housing of the alternator and engine block, apply just enough force to achieve the correct belt tension per the manufacturer's requirements. 2) Tighten the **bolt** on the adjustment ear. Remove the pry bar and tighten **the remaining mounting bolt(s).**

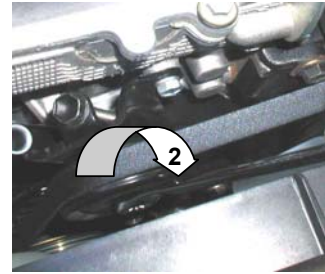


8 cont.

b) With automatic tensioner-- 1) Loosely route the belt per the Under hood decal, leaving the belt off the most easily accessible pulley. 2) Position a wrench or breaker bar on the tensioner. 3) Pull the tensioner arm back to create enough slack to slip belt over the last pulley.



c) With manual tensioner-- 1) Place the belt over the correct pulleys and tighten the tensioner adjusting bolt until belt tension meets the manufacturer's requirements. 2) Then tighten the lock nut and alternator mounting bolt(s).



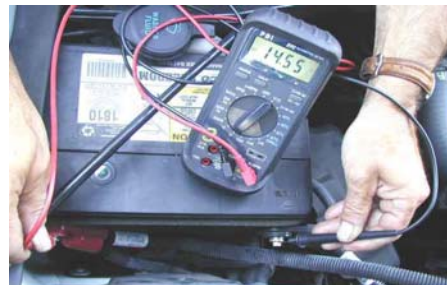
HINT (for manual tensioners and those with adjustment ear): When the manufacturer's belt tension specifications are unavailable, check the deflection. This is done by applying about 20 lbs. of finger pressure to the belt between the two pulley's that are furthest apart. A correctly adjusted belt will usually deflect about a 1/2". This tension must be re-checked /adjusted after the engine has run for 15 minutes.

9 Re-connect all the cables and harnesses to the back of the alternator. Inspect all wire, cable and connectors for cracks or damage. Replace as necessary. When a harness is provided with your new alternator, ALWAYS replace.

CAUTION: Do not over tighten battery post nut. (Torque to 50-70 inch/lbs.)



10 Re-connect the battery (-) cable and start the engine. Allow the engine to idle for 15 minutes. Operate the engine at 2000 rpm (in Park, or Neutral (for manual transmissions) check the output with a voltmeter. The voltage reading should be 13.5-15.1 volts. If it is outside this range see Basic Troubleshooting below.



REMINDER: Re-check belt tension after you turn off the engine, now that the vehicle has been operating for 15 minutes.

Basic Trouble Shooting

Problem: HIGH VOLTS

If externally regulated, check regulator per manufacturer's instructions. (Replace as necessary)
If internally regulated, call the MPA Technical Support Line for further assistance.

Problem: LOW VOLTS

Check Battery--per Removal step 1. Without a good battery it is impossible to do further trouble shooting!

If externally regulated, check regulator per manufacturer's instructions. (Replace as necessary)
If internally regulated, call the MPA Technical Support Line for further assistance.

Cable/Connections Check-- 1) With engine running at 2000 RPM's and the headlights and fan on Check Negative (-) side by touching one probe to the (-) battery post and the other to the alternator case. The voltage reading should be 0.3v or less. 2) Check the positive (+) side. Place one probe on the (+) battery post and the other on the (+) output post of the alternator. The voltage reading should be 0.6v or less.



If one or both the readings were high, then there is a problem with the +/- cable or its connections.

Negative Side Reading is Too High--Most Common Causes

- 1) Negative battery terminal connection is corroded or loose.
- 2) Battery cable to engine block connection is making poor contact.
- 3) Alternator bracket has oil, paint or dirt that does not allow it to make good ground. Remember, this is probably the alternators only source of ground, if it is weak, the charging system will NOT work.

Positive Side Reading is Too High--Most Common Causes

- 1) Positive battery terminal connection is corroded or loose.
- 2) Fuses or Fusible Links are Burned. Check the fuses on a ohm meter (sometimes a fuse looks good when it isn't). A fusible link will be along the cable(s) running between the positive terminal of the battery and the battery terminal of the alternator. Fusible links can sometimes be difficult to recognize, so be sure to check the entire length of cable for soft spots, or melted insulation. Replace cables that are questionable with factory style cables.

Positive and Negative connections test GOOD, call the MPA Technical Support line for further assistance.

Problem: GOOD VOLTS, BUT CHARGING INDICATOR LAMP LIGHT STAYS ON